Health Headlines

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HIV may hide out in crawling immune cells

NEW YORK (Reuters Health) - Specialized white blood cells that can crawl around the body gobbling up invaders--known as macrophages--may play a more important role in HIV infection than scientists previously thought, researchers said this week. The findings could have implications for the type of drugs that are needed to completely eliminate the virus from an infected person.

The combinations of drugs currently used to fight HIV can reduce levels of virus in the body, but the virus usually rebounds after the drugs are stopped. Because HIV attacks one type of white blood cell--CD4 T-cells--early in the infection, researchers have thought that these cells were likely to be the source of the rebounding virus. But the new results suggest that macrophages, not CD4 T cells, may be where the virus springs from later in the disease.

Macrophages are on the frontlines of the immune system, gobbling up invaders and displaying the interloper's proteins on their surface--a step that normally triggers the immune system to attack the invader.

Dr. Malcolm A. Martin, from the National Institute of Allergy and Infectious Diseases in Bethesda, Maryland and colleagues infected monkeys with a hybrid HIV-like virus called SHIV and used a range of techniques to identify which cells and tissues the virus infected.

The deadly hybrid killed CD4 T cells in the blood within 3 weeks of infection. But the animals survived 3 to 6 additional months, producing extremely high levels of virus--suggesting that viruses were ``hiding'' in some other cells.

Measurements of viral genetic material showed evidence of the virus in macrophages scattered throughout the lymph nodes, gastrointestinal tract, spleen, liver and kidney, the researchers note in an online report in the January 2nd Early Edition of the Proceedings of the National Academy of Sciences.

As in humans, anti-HIV drug therapy early in infection reduced the viral levels in the monkeys. In contrast, reverse transcriptase inhibitor treatment during the macrophage stage of the infection did not reduce virus levels, the authors write.

``Our research suggests that macrophages are an underappreciated reservoir of virus in HIV infection," Martin said in a statement.

``These cells become infected immediately after exposure to HIV, are relatively resistant to virus killing, and are able to produce lots of new virus. Most currently available treatments target HIV during its infection of T cells, but if the virus also infects and accumulates in large amounts in macrophages, additional drugs may be required," he added.

``Our studies suggest that we need new classes of antiretroviral agents that can target HIV during infections of tissue macrophages," the researcher noted. ``They potentially could eliminate this reservoir of virus and obviously complement currently available drugs."

SOURCE: Proceedings of the National Academy of Sciences, USA (online) January 2, 2001;doc 5517.

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